TPL VISION
Active LED solutions

MEDIUM MBACK+ EXPERT
USER'S GUIDE

PREAMBLE

This notice includes all the advice and warnings that enables a correct set up and a safe use of the product. TPL Vision can not be responsible for the bad use of the notice. If so, TPL Vision cancels the guarantee's effects.

IP40 +40°C -10°C

DO NOT CONNECT TO 24VDC.
YOU NEED A CONTROL CURRENT DRIVE !

UNPACKING

Products are packed in our factory, using suitable materials for a safe transport through the usual means of transportation, in France and abroad. However, a damaged package must be reported to the carrier on delivery. Hand-written reservations must be indicated on the delivery order. Moreover, please send a letter or an email to TPL Vision as soon as possible (up to 24 hours after the delivery). If the transportation damage has not been stipulated on the delivery order and reported to TPL Vision in time, the package will not be taken back nor exchanged. To open the package, do not use any cutting blade so as to avoid damages on the product. Please use the delivered accessories, if needed (do not use any other products or equivalents to replace the delivered accessories).

RISK CLASS

The EN-62471 norm about lighting fluxes enables the classification of led lightings in 4 distinct groups, according to their hazardousness degree. Please find below an indicative table, recapitulating the classes of risk for our standard products.

Colour	Class	Risk
White WHI, Green 525 nm, Red 630 nm	0	none
UV 405 nm, Blue 470 nm, IR 850 nm	1	low
UV 365 nm	2	moderate
UV 385 nm	3	high

In all cases, TPL Vision recommends the use of **the protection glasses** that are listed in its catalog.

For more information about photo-biological risks, do not hesitate to contact us.

TPL Vision can provide calculation notes about **the nominal distance of eye risks** (security distance).

BEWARE to the infrared light, invisible to the eyes.
To know if the light is on, please use a camera.

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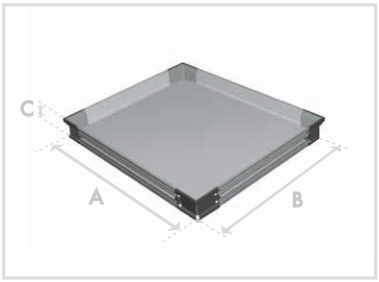
DIMENSIONS

Length (mm)		Width (mm)		Height (mm)
A		B		C
Min : 200	Max : 1900	Min : 200	Max : 900	45

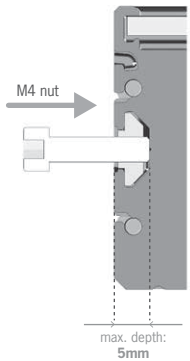
- **Useful surface:** A x B
- **Max. useful surface:** 0.88 m2
- **Max. useful perimeter:** 4.5 m
- **Total surface (connector excluded):** (A + 4mm) x (B + 4mm)



FIXING

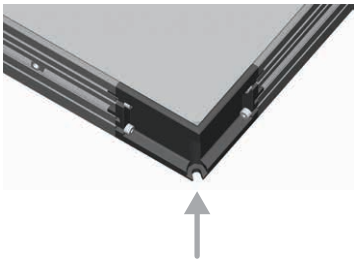
During the set up, the light has to be switched off and unplugged. Please use the fixing groove or holes designed for that purpose. We recommend the using of nuts (supplied) in the groove or M4 screws (not supplied) with a tightening torque from 0.5 to 1.5 Nm. We also recommend the use of a threadlocker (not supplied) to avoid any risk of loosening.

FIXING ON THE LENGTH (groove)



(4 M4 nuts – supplied)

FIXING ON THE CORNER

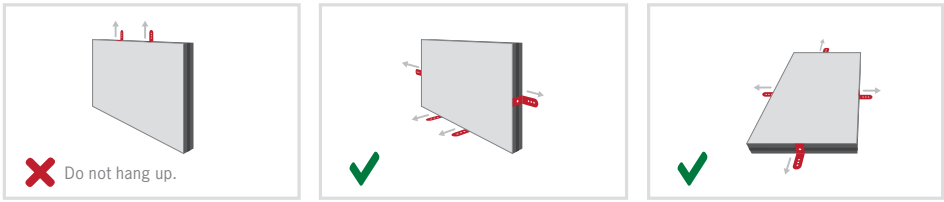


(CHC screw M3x20 – not supplied)

IP40 +40°C -10°C

DO NOT CONNECT TO **24VDC**

BEWARE to the use of angle brackets.

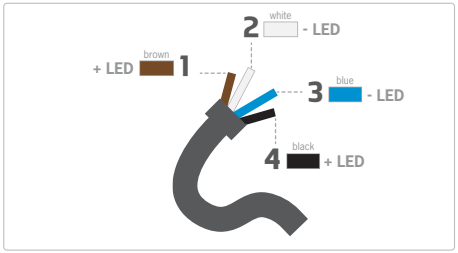


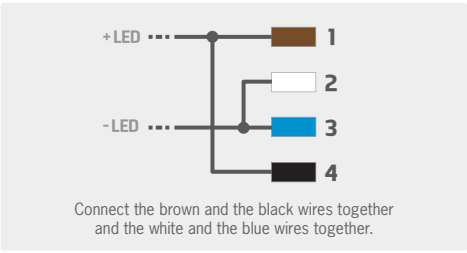
WIRING

SURFACE ≤ 0.25 m² : 1 wiring	**SURFACE > 0.25 m² :** 2 wirings
1 x Cable	2 x Cables
Maximum surface: 0.5 m²	

CONNECTION

Cable 4 wires





Connect the brown and the black wires together and the white and the blue wires together.

Voltage drop for Cable 10 meters:	0,6V @ 5A	1,2V @ 10A	1,8V @ 15A	2,3V @ 20A	2,9V @ 25A	**Max: 25A/cable**

If the MBACK+ EXPERT is delivered with **2 cables**, please connect both cables **the same way**.

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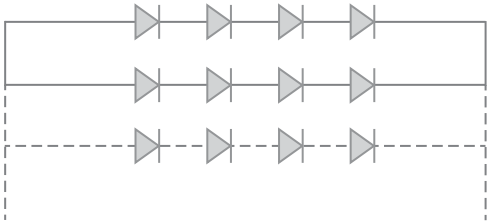
LED CONNECTION IN THE PRODUCT

The LED are connected in series, by branch of 4.
All branches of 4 LED are then connected in parallel.



LED FEATURES

Max admissible current: 2.5A ; t < 100µs ; D = 0.005 (0.5%).
Max admissible current in continuous mode: 350mA.

Current «I» /Led	Max pulse width «t»	Max Duty cycle «D»	Tension «Vf» (+/-20%) /Led	Relative luminous flux/350mA f(I) +0/-20%
Up to 350mA	CW	N/A	3,2V	100%
500mA	10s	50%	3,3V	135%
800mA	1s	30%	3,5V	185%
1A	10ms	10%	3,6V	220%
1,5A	1ms	5%	3,75V	285%
2A	500µs	2%	3,9V	330%
2,5A	100µs	0,50%	4,2V	370%

Min current: 100mA.
LED rising time: 200 nano seconds (0.2µs).
Required voltage at the product entry (cable port of entry): Vf x 4 + 2.5VDC.

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EXAMPLE OF CURRENT CONTROL DIMENSIONING

Product dimension (max 0.5 m²)**:** 600 x 400 = 0.24m² → 1 or 2 cables → decision: **1 cable**.
LED number (1 LED = 25 cm²)**:** 0.24 x 100² ÷ 25 = **96 LED**.
Number of branches of 4 LED: 96 ÷ 4 = **24 branches**.

Max admissible current:

24 branches x 2.5A/branch = 60A in total
1 cable = 25A max
} → 25A max → 25 ÷ 24 ≃ **1A/branch**.

We choose the lowest value. Here: 25A.
We can then calculate the number of Ampere per branch, to get the minimum operating voltage.

Minimum operating voltage: the table gives 3.6V/LED for 1A → 3.6V x 4 + 2.5V = **17V**

OPERATING CONDITIONS

-10° to +40°C / 80% of humidity without condensation.
No thermal shock (max temperature variation: 10°C in 24h).

USER SECURITY

Do respect the power supply voltages and the connection terminals.
Do not modify or dismantle all or part of the product.
Do not connect or clean when power is on.
Do not watch the lighting source directly, and follow the advice below :

- If the workstation enables it, interpose a filter that will stop the lighting radiation under fixed or adjustable frame between the source and the operator.
- When these measures cannot be implemented, supply the operators with glasses (class 4) available for sale at TPL Vision, or with a dedicated protective mask, that will stop the lighting radiation.
- Forbid or limit the direct access to the lighting source (exposure into the radiation axis).
- Establish a security perimeter so as to prevent the operators from approaching the lighting source beyond the recommendations of the manufacturer, as for eye irritation is concerned.
- In any case, ensure that the chosen means properly reduce the exposition quantities (features of screens or glasses to be chosen, according to the wavelengths that the operators are exposed to).

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EQUIPMENT MAINTENANCE

CLEANING (when the product is switched off)

Please use a soft and dry cloth.
Do not use any abrasive material.
Do not use any cleaning solvent or aggressive chemical product – isopropyl alcohol.

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Features and presentations liable to changes without notice.

TPL VISION
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